

Serial No.: 09/500,555
Filed: February 9, 2000

Listing of claims

This listing of claims will replace all prior versions, and listings, of claims in the application.

1. (canceled)
2. (previously presented) The array composition according to claim 52, 55 or 57, wherein at least one of said subpopulations comprises a unique optical signature.
3. (previously presented) The array composition according to claim 52, 55 or 57, wherein each subpopulation comprises an identifier binding ligand that will bind a decoder binding ligand for identification and elucidation of said bioactive agent.
4. (previously presented) The array composition according to claim 52, 55 or 57, wherein said substrate is a fiber optic bundle and said fiducial is a fiducial fiber.
5. (previously presented) The array composition according to claim 4 wherein said substrate is a fiber optic bundle, said array comprises at least three non-linear fiducials, and each of said fiducials is a fiducial fiber.
6. (previously presented) The array composition according to claim 5 wherein at least one of said fiducial fibers has a different shape from the others.
7. (canceled)
8. (canceled)
9. (previously presented) The array composition according to claim 52, 55 or 57, wherein said bioactive agents are nucleic acids.
10. (previously presented) The array composition according to claim 52, 55 or 57, wherein said bioactive agents are proteins.
11. (previously presented) The array composition according to claim 52, 55 or 57, further comprising a computer readable memory comprising:
 - a) computer code that receives a first data image; and

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b) computer code that registers said first data image using said fiducial to generate a first registered data image.

12. (previously presented) The array composition according to claim 11 wherein said computer readable memory further comprises:

- a) computer code that receives a second data image;
- b) computer code that registers said second data image using said fiducial to generate a second registered data image; and
- c) computer code that compares said first and said second data image.

Claims 13-17. (withdrawn)

18. (canceled)

19. (previously presented) The method according to claim 60, 63 or 65, wherein said subpopulations further comprise an identifier binding ligand that will bind a decoder binding ligand for identification and elucidation of the bioactive agent.

20. (previously presented) The method according to claim 60, 63 or 65, wherein at least one of said subpopulations further comprise an optical signature for identification and elucidation of the bioactive agent.

21. (previously presented) The method according to claim 60, 63 or 65, wherein said substrate is a fiber optic bundle and said fiducial is a fiducial fiber.

22. (previously presented) The method according to claim 21, wherein said substrate is a fiber optic bundle, said array comprises at least three non-linear fiducials, and each of said fiducials is a fiducial fiber.

23. (previously presented) The method according to claim 22 wherein at least one of said fiducial fibers has a different shape from the others.

24. (canceled)

25. (canceled)

26. (previously presented) The method according to claim 60, 63 or 65, wherein said bioactive agents are nucleic acids.

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27. (previously presented) The method according to claim 60, 63 or 65, wherein said bioactive agents are proteins.

Claims 28- 43. (withdrawn)

44. (previously presented) The composition according to claim 52, 55 or 57, wherein said discrete sites are wells.

45. (previously presented) The composition according to claim 52, 55 or 57, wherein said microspheres are randomly distributed on said substrate.

46. (previously presented) The method according to claim 60, 63 or 65, wherein said discrete sites are wells.

47. (previously presented) The method according to claim 60, 63 or 65, wherein said microspheres are randomly distributed on said substrate.

48. (previously presented) The method according to claim 19, wherein said identifier binding ligand is a protein.

49. (previously presented) The method according to claim 19, wherein identifier binding ligand is a nucleic acid.

50. (previously presented) The composition according to claim 3, wherein said identifier binding ligand is a protein.

51. (previously presented) The array composition according to claim 3, wherein identifier binding ligand is a nucleic acid.

52. (previously presented) An array composition comprising:

- a) a substrate with a surface comprising discrete sites;
- b) a population of microspheres comprising at least a first and a second subpopulation, wherein each subpopulation comprises a bioactive agent, wherein said microspheres are distributed on said surface; and
- c) at least one fiducial, wherein said fiducial is permanently incorporated into said substrate.

53. (previously presented) The array composition according to claim 52, wherein said fiducial is on the periphery of said array.

54. (previously presented) The array composition according to claim 53, wherein said fiducial is at a defined location of said array.

55. (previously presented) An array composition comprising:

- a) a substrate with a surface comprising discrete sites;
- b) a population of microspheres comprising at least a first and a second subpopulation, wherein each subpopulation comprises a bioactive agent, wherein said microspheres are distributed on said surface; and
- c) at least one fiducial, wherein said fiducial is on the periphery of said array.

56. (previously presented) The array composition according to claim 55, wherein said fiducial is at a defined location of said array.

57. (previously presented) An array composition comprising:

- a) a substrate with a surface comprising discrete sites;
- b) a population of microspheres comprising at least a first and a second subpopulation, wherein each subpopulation comprises a bioactive agent, wherein said microspheres are distributed on said surface; and
- c) at least one fiducial, wherein said fiducial is at a defined location of said array.

58. (previously presented) The array composition according to claim 57, wherein said fiducial is permanently incorporated into said substrate.

59. (previously presented) The array composition according to claim 52, 55 or 57, wherein said substrate is a fiber optic bundle.

60. (previously presented) A method of making an array composition comprising:

- a) forming a surface comprising individual sites on a substrate;
- b) distributing microspheres on said surface such that said individual sites contain microspheres, wherein said microspheres comprise at least a first and a second subpopulations each comprising a bioactive agent; and
- c) permanently incorporating at least one fiducial onto said surface.

61. (previously presented) The method according to claim 60, wherein said fiducial is on the periphery of said array.

62. (previously presented) The method according to claim 61, wherein said fiducial is at a defined location of said array.

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63. (previously presented) A method of making an array composition comprising:

- a) forming a surface comprising individual sites on a substrate;
- b) distributing microspheres on said surface such that said individual sites contain microspheres, wherein said microspheres comprise at least a first and a second subpopulations each comprising a bioactive agent; and
- c) incorporating at least one fiducial onto said surface, wherein said fiducial is on the periphery of said array.

64. (previously presented) The method according to claim 63, wherein said fiducial is at a defined location of said array.

65. (previously presented) A method of making an array composition comprising:

- a) forming a surface comprising individual sites on a substrate;
- b) distributing microspheres on said surface such that said individual sites contain microspheres, wherein said microspheres comprise at least a first and a second subpopulations each comprising a bioactive agent; and
- c) incorporating at least one fiducial onto said surface, wherein said fiducial is at a defined location of said array.

66. (previously presented) The method according to claim 64, wherein said fiducial is permanently incorporated into said array.

67. (previously presented) The method according to claim 60, 63 or 65, wherein said substrate is a fiber optic bundle.